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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,369	12/08/2003	Paul J. Glatkowski	8125.012.US	8141

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EXAMINER	
MILLER, DANIEL H	
ART UNIT	**PAPER NUMBER**
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/729,369	GLATKOWSKI ET AL.	
	Examiner	Art Unit	
	Daniel Miller	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *18-25,33 and 34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 26-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 8-16 and 26-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibuta (US 5,908,585).

3. Shibuta teaches carbon nanotubes in a polymer creating a transparent film (abstract and column 2 line 5-10). The coating can be screen printed (inherently patterned) onto a transparent substrate (column 6 line 50-56). The film transparency is preferably at least 85% (column 7 line 1-7), which overlaps applicants claimed range. The surface resistivity is 10^2-10^8 ohms (column 7 line 7-20).

4. Regarding claim 8, the article of Shibuta can be used as an integrated circuit.

5. Regarding claim 10, the nanotubes would inherently be one of those claimed by applicant, since they are all known variants of CNTs.

6. Regarding claims 9, 12-13, and 14-15, since the structure of Shibuta and applicant's invention are substantially similar it would be expected to have substantially similar properties.

7. Regarding claim 26, the process limitations recited are not indicative of patentability of the product. The article inherently has a thickness and pattern and is composed of conductive transparent material.

8. Regarding claim 27, the conductive material is carbon nanotubes.

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-17 and 26-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Glatkowski (US 2003/0122111).

10. Glatkowski teaches the same nanotube coating as claimed by applicant with the same transparency, and the physical characteristics (see claims of ref.). The layer can exist as part of a multilayered structure (see claim 42 ref.). Since the structure and composition are substantially similar the layer would be considered to have similar characteristics. Additional conductive material can be present including a conductive polymeric material such as ITO [055], gold [0061], the nanotubes are graphitic and would meet the limitation "graphite". The film of Glatkowski can comprise a plurality of differently-oriented nanotube films wherein each layer can be oriented and adjusted, thus forming filters or polarizers [0059]. This is considered to meet the newly asserted limitation of a "desired pattern".

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 6-7, and 28, 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibuta.

13. Shibuta, discussed above, is silent as to the thickness of the layer, the fill area, or the claimed surface resistivity of claim 6 and 7.

14. Shibuta does teach the addition of Ito in the conductive layer (claim 7 ref.).

15. The coating can be screen printed (inherently patterned) onto a transparent substrate (column 6 line 50-56).

16. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the thickness and fill area to achieve the surface resistivity and transparency desired for particular applications, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

17. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibuta in view of Narayan (2003/0213939).

18. Shibuta, discussed above, is silent as to the conductive layer being formed from gold.

19. Narayan teaches that nanotube films inherently have impurities in the form of catalytic particles, one such particle can be gold [0020]. Further the composite material of Narayan has a resistivity as low as 10^-2 ohms (abstract).

20. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide gold catalytic particles within the film for growth of carbon nanotubes and have them remain as an impurity in the conductive layer because they are a known catalytic material used for growing the nanotubes.

21. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibuta in view of Amey (6,565,403).

22. Shibuta, discussed above, is silent as to the conductive layer being formed in between two layers.

23. Amey teaches a field emitter wherein carbon nanotubes films are put between two substrates (figure 16).

24. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a second substrate as in Amey in order to use the layer of Shibuta in a field emitter application exploiting the nanotubes' known electrical properties.

Response to Arguments

25. Applicant's arguments filed 10/25/20007 have been fully considered but they are not persuasive.

26. Regarding the rejection in view of Glatkowski, applicant has purposely not signed the declaration stating that the invention is derived from applicant and therefore not an invention "by another". Therefore applicant has not made such an assertion and therefore the rejection is maintained.

27. Applicant argues that the references do not teach a "desired pattern" as claimed.

28. The film of Glatkowski can comprise a plurality of differently-oriented nanotube films wherein each layer can be oriented and adjusted, thus forming filters or polarizers [0059]. This is considered to meet the newly asserted limitation of a "desired pattern".

29. Shibuta teaches carbon nanotubes in a polymer creating a transparent film (abstract and column 2 line 5-10). The coating can be screen printed (inherently patterned) onto a transparent substrate (column 6 line 50-56). The "screen" in a screen printing process inherently patterns the film preventing coverage of certain areas while allowing coverage of others by the film. The screen is considered to be shaped into a "desired pattern", as claimed, the desired pattern is then used to deposit the nanotube film imparting said desired pattern to the film.

30. Regarding the 103 rejections of Shibuta, applicant appears to be arguing that the film in Shibuta has no thickness and therefore the thickness can not be optimized. It is clear that the film of Shibuta has some inherent thickness in the film and therefore the thickness would be optimizable to obtain optimal electrical and transparent properties. In addition, see above remarks. Rejections maintained.

Conclusion

31. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Miller whose telephone number is (571)272-1534. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel Miller

KEITH D. HENDRICKS
SUPERVISORY PATENT EXAMINER